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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,396	11/21/2003	James J. Spence	D/A3213	2562
25453	7590	01/12/2006	EXAMINER	
PATENT DOCUMENTATION CENTER XEROX CORPORATION 100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR ROCHESTER, NY 14644			MORRISON, THOMAS A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/719,396	SPENCE ET AL.
	Examiner Thomas A. Morrison	Art Unit 3653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 November 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-17 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 21 November 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/21/2003</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, (1) the recited **frame** of claim 10; (2) the recited **fan** of claim 12; (3) the recited **tracking rollers** of claim 13; and (4) the recited **machine frame** of claim 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Regarding claim 2, the specification fails to provide proper antecedent basis for the recited first perforated layer being made of an **elastomeric material**.

Regarding claim 9, the specification fails to provide proper antecedent basis for the recited selected material being **felt**.

Regarding claim 10, the specification fails to provide proper antecedent basis for the recited **frame**.

Regarding claim 12, the specification fails to provide proper antecedent basis for the recited **fan**.

Regarding claims 14-16, the specification fails to provide proper antecedent basis for the recited **heat pipe roller assembly**.

Regarding claim 17, the specification fails to provide proper antecedent basis for the recited **machine frame**

Regarding claim 17, the specification fails to provide proper antecedent basis for the recited **marking material**.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 6-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "significantly less" in claim 4 is a relative term which renders the claim indefinite. The term "significantly less" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. As such, it is unclear in claim 4, what is meant by having a density significantly less than a density of said first layer.

The term "less thermally conductive" in claim 8 is a relative term which renders the claim indefinite. The term "less thermally conductive" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. As such, it is unclear in claim 8, what is meant by said selected material, relative to said first perforated layer, is less thermally conductive.

With regard to claim 10, it is unclear what is meant by the recited "support means".

Claim 11 recites the limitation "said vacuum plenum" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "said heat pipe assembly" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "said heat pipe assembly" in line 2. There is insufficient antecedent basis for this limitation in the claim.

With regard to claim 17, it is unclear what is meant by the recited **substrate supply and handling means**.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,477,558 (Fleischauer).

Regarding claim 1, Figs. 10E and 15-17 show an air diffusing vacuum transport belt (110') for transporting image carrying substrates without vacuum belt induced image defects, the air diffusing vacuum transport belt (110') including

(a) a first perforated layer (135) for mounting over a vacuum plenum (e.g., as shown in Fig. 16), the first perforated layer (135) including a top surface and a bottom surface, solid areas, and perforated hole areas (137) interspersing the solid areas for directing pressurized airflow from the top surface through to the bottom surface; and

(b) a second non-perforated layer (120') formed over the top surface of the first perforated layer (135) and covering the solid areas and the perforated hole areas, the second non-perforated layer (120) having an inner surface positioned over the top surface of the first perforated layer (135), and an outer surface for uniformly supporting substrates, and the second non-perforated layer (120) being porous to air for diffusing pressurized airflow from the outer surface thereof into the perforated hole areas of the first perforated layer (135), thereby enabling transporting of image carrying substrates without vacuum belt induced image defects.

Regarding claim 2, column 14, lines 43-45 disclose that the first perforated layer (135) is made of an elastomeric material.

Regarding claim 3, Fig. 10E shows that the second non-perforated layer (120') is laminated onto the top surface of the first perforated layer (135).

Regarding claim 5, Fig. 10E shows that the outer surface of the second non-perforated layer (120') is smooth for providing a uniform support surface for a back side of an image carrying substrate.

Regarding claim 10, Figs. 10E and 15-16A show an air diffusing vacuum transport assembly (Figs. 15 and 16) including

(a) a frame (Fig. 16) defining a vacuum plenum assembly including a vacuum chamber (202);

(b) support means (including 112' and 114') for supporting a moveable continuous belt around the vacuum plenum assembly (Figs. 15 and 16); and

(c) an air diffusing vacuum transport belt (110') mounted around the frame (Fig. 16) for supporting and transporting a substrate over the frame (Fig. 16),

the air diffusing vacuum transport belt (110') including:

(i) a first perforated layer (135 in Fig. 10E) for mounting over a vacuum plenum (Fig. 16), the first perforated layer (135) including a top surface and a bottom surface, solid areas, and perforated hole areas (137) interspersing the solid areas for directing pressurized airflow from the top surface through to the bottom surface; and

(ii) a second non-perforated layer (120') formed over the top surface of the first perforated layer (135) and covering the solid areas and the perforated hole areas, the second non-perforated layer (120') having an inner surface positioned over the top surface of the first perforated layer (135), and an outer surface for uniformly supporting substrates, and the second non-perforated layer (120') being porous to air for diffusing pressurized airflow from the outer surface thereof into the perforated hole areas (137) of the first perforated layer (135), thereby enabling transporting of image carrying substrates without vacuum belt induced image defects.

Regarding claim 11, Fig. 15 shows that the vacuum plenum includes a top plate (crisscrossed structure in Fig. 15) having airflow apertures located below the air diffusing vacuum transport belt (110').

Regarding claim 12, Fig. 16A shows that the vacuum plenum assembly can include a fan (209) for moving air from the outer surface of the non-perforated second layer (120') of belt (110') into the vacuum chamber.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Fleischauer patent. The Fleischauer patent discloses the claimed invention except for the difference in densities of the first and second layers of the belt. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide materials having different densities for the first and second layers of the belt, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. The Fleischauer patent discloses that the second non-perforated layer is made from foam, while the first perforated layer (135) is made from elastomeric material. The elastomeric material of the first perforated layer

has holes through which air can pass, while the foam material of the second non-perforated layer (120") does not appear to have any openings whatsoever. As such, one of ordinary skill in the art would be motivated to provide the second non-perforated layer with a lower density material (e.g., lower amount of material per unit area) than that of the first non-perforated layer, in order to facilitate adequate air flow through the material itself since the material of the second non-perforated layer does not have holes to facilitate adequate air flow.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Fleischauer patent. The Fleischauer patent discloses the claimed invention except for the difference in thermal conductivities of the first and second layers of the belt. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide materials having different thermal conductivities for the first and second layers of the belt, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. One of ordinary skill in the art would have been motivated to provide a second non-perforated layer of the belt having a thermal conductivity that is lower than that of the first perforated layer of the belt, in order for the outermost layer (second non-perforated layer) to better prevent heat from entering into the inner layer of the belt and damaging the belt.

7. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Fleischauer patent, and further in view of U.S. Patent No. 5,535,997 (Croyle et al.). Claims 6 and 9 depend from claim 4. As mentioned above with regard to the

argument for claim 4, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide materials having different densities for the first and second layers of the belt, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. With regard to claims 6 and 9, the Fleischauer patent does not specifically indicate that the material is woven fabric material or felt, as claimed.

The Croyle et al. patent discloses that it is well known that woven fabrics and felt materials are flexible and air-permeable and sometimes used in connection with suction devices. See, e.g., column 4, lines 1-3. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the air diffusing vacuum transport belt with the second non-perforated layer made from either woven fabric material or felt, because these materials are flexible as well as air-permeable, as taught by the Croyle et al. patent.

8. Claims 10-12, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,032,875 (Gooray et al.) and further in view of U.S. Patent No. 3,477,558 (Fleischauer).

Regarding claim 10, Figs. 1 and 5A-5B of the Gooray et al. patent show an air diffusing vacuum transport assembly (Fig. 5A) including

(a) a frame (330) defining a vacuum plenum assembly including a vacuum chamber (inside 330);

(b) support means (including 310 and 312) for supporting a moveable continuous belt (305) around the vacuum plenum assembly (Figs. 5A); and

(c) an air diffusing vacuum transport belt (305) mounted around the frame (330) for supporting and transporting a substrate over the frame. However, the Gooray et al. patent does not specifically show that the air defusing vacuum transport belt has first and second layers, as claimed.

Figs. 10E and 15-16 of the Fleischauer patent disclose that it is well known to provide an air diffusing vacuum transport belt (110') mounted around a frame (Figs. 15-16), in which the air diffusing vacuum transport belt (110') includes (i) a first perforated layer (135 in Fig. 10E) for mounting over a vacuum plenum (Fig. 16), the first perforated layer (135) including a top surface and a bottom surface, solid areas, and perforated hole areas (137) interspersing the solid areas for directing pressurized airflow from the top surface through to the bottom surface; and (ii) a second non-perforated layer (120') formed over the top surface of the first perforated layer (135) and covering the solid areas and the perforated hole areas, the second non-perforated layer (120') having an inner surface positioned over the top surface of the first perforated layer (135), and an outer surface for uniformly supporting substrates, and the second non-perforated layer (120') being porous to air for diffusing pressurized airflow from the outer surface thereof into the perforated hole areas (137) of the first perforated layer (135), thereby enabling transporting of image carrying substrates without vacuum belt induced image defects.

The Abstract of the Fleischauer patent explains that such an arrangement utilizes vacuum support principles in general conveying or transporting of articles, without the

use of high differential pressures, movable vacuum heads, and large leakage rates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the apparatus of the Gooray et al. patent with the belt structure of the Fleischauer in order to facilitate conveying of articles without high differential pressures or large leakage rates, as taught by the Fleischauer patent.

Regarding claim 11, Fig. 15 of the Fleischauer patent shows that the vacuum plenum includes a top plate (crisscrossed structure in Fig. 15) having airflow apertures located below the air diffusing vacuum transport belt (110').

Regarding claim 12, Fig. 16A of the Fleischauer patent shows that the vacuum plenum assembly can include a fan (209) for moving air from the outer surface of the non-perforated second layer (120') of belt (110') into the vacuum chamber.

Regarding claim 14, the Gooray et al. patent discloses that the support means includes a heat pipe roller assembly (Fig. 5B) for removing heat from the air diffusing vacuum transport belt (305). See also column 6, lines 12-33 for explanation of the heat pipe roller assembly.

Regarding claim 17, Figs. 1 and 5A-5B of the Gooray et al. patent show an image producing machine including

- (a) a machine frame (cross-hatched members in Fig. 1);
- (b) substrate supply and handling means (including 59, 100, 66, 10 and 32) for supplying and moving an image receiving substrate through the machine frame;

(c) imaging means (station C) including marking material for forming an image on the image receiving substrate; and

(d) an air diffusing vacuum transport assembly (Figs. 5A-5B) for transporting the image receiving substrate within the machine frame, the air diffusing vacuum transport assembly (Figs. 5A-5B) including an air diffusing vacuum transport belt (305) for supporting and transporting a substrate. However, the Gooray et al. patent does not specifically show that the air defusing vacuum transport belt has first and second layers, as claimed.

As mentioned above, Figs. 10E and 15-16 of the Fleischauer patent disclose that it is well known to provide an air diffusing vacuum transport belt (110') mounted around a frame (Figs. 15-16), in which the air diffusing vacuum transport belt (110') includes (i) a first perforated layer (135 in Fig. 10E) for mounting over a vacuum plenum (Fig. 16), the first perforated layer (135) including a top surface and a bottom surface, solid areas, and perforated hole areas (137) interspersing the solid areas for directing pressurized airflow from the top surface through to the bottom surface; and (ii) a second non-perforated layer (120') formed over the top surface of the first perforated layer (135) and covering the solid areas and the perforated hole areas, the second non-perforated layer (120') having an inner surface positioned over the top surface of the first perforated layer (135), and an outer surface for uniformly supporting substrates, and the second non-perforated layer (120') being porous to air for diffusing pressurized airflow from the outer surface thereof into the perforated hole areas (137) of the first perforated layer (135), thereby enabling transporting of image carrying substrates without vacuum belt

induced image defects. The Abstract of the Fleischauer patent explains that such an arrangement utilizes vacuum support principles in general conveying or transporting of articles, without the use of high differential pressures, movable vacuum heads, and large leakage rates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the apparatus of the Gooray et al. patent with the belt structure of the Fleischauer in order to facilitate conveying of articles (e.g., substrates) without high differential pressures or large leakage rates, as taught by the Fleischauer patent.

Allowable Subject Matter

9. Claim 7 depends from claim 4. Claim 7 would be allowable if amended to overcome the 35 U.S.C. 112, second paragraph rejection of claim 4 outline above. Claims 13, 15 and 16 would be allowable if amended to overcome the 35 U.S.C. 112, second paragraph rejections outline above.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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KATHY MATECKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600